

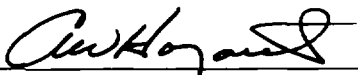
**First Five-Year Review Report**  
**for**  
**SCA Independent Landfill**  
**Muskegon, Muskegon County, Michigan**  
**May 2005**

**PREPARED BY:**

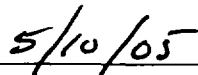
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**Lansing, Michigan**

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# Five-Year Review Report

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## **List of Acronyms**

BMDL	Below Method Detection Limit
CD	Consent Decree
DCA	Dichloroethane
DCE	Dichloroethylene
DNAPL	Dense Non-Aqueous Phase Liquid
GSI	Groundwater/Surface Water Interface
GPM	Gallons Per Minute
LP	Liabe Party
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MDPH	Michigan Department of Public Health
MZD	Mixing Zone Determination
NPL	National Priorities List
NREPA	Natural Resources and Environmental Protection Act
O&M	Operation and Maintenance
PAH	Polynuclear Aromatic Hydrocarbons
PCE	Tetrachloroethylene
RA	Remedial Action
RAO	Remedial Action Objective
RAP	Remedial Action Plan
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
SVE	Soil Vapor Extraction
TCA	Trichloroethane
TCE	Trichloroethylene
UAO	Unilateral Administrative Order
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WMI	Waste Management, Inc.

## **Executive Summary**

The SCA Independent Landfill (the site) is located in Section 6, Township 9 North, Range 15 West, Sullivan Township, Muskegon County, Michigan. The landfill is located east of Brooks Road between Summit Road and Black Creek (Figures 1 and 2). Landfilling was done at the edge of and in the wetlands on the south side of Black Creek. Private homes border the site to the south and west, and wetlands border the landfill to the east and north.

Table 1, within this report, lists an extensive site chronology. In summary, the SCA Independent Landfill was first licensed in 1968 as a sanitary landfill under the Garbage and Refuse Disposal Act, 1965 Public Act 87, as amended. The landfill accepted municipal solid waste (comprised of residential, commercial, and industrial refuse) from Muskegon and Ottawa Counties, as well as foundry sand and fly ash. Waste deposition at the site occurred in four distinct disposal areas, only one of which is adequately lined with three feet of clay. The landfill was officially closed in June 1987. The entire waste disposal area has been closed and capped and is being maintained and monitored in accordance with the Michigan Department of Natural Resources (MDNR), now Michigan Department of Environmental Quality (MDEQ), approved closure plan.

The site was placed on the National Priorities List (NPL) on September 8, 1983, and designated a state-lead site. Waste Management, Inc. (WMI), the current owner and liable party (LP) for the site, executed an Administrative Order by Consent (Order) with the MDNR in September 1993. In this Order, WMI agreed to conduct the Remedial Investigation/Feasibility Study (RI/FS) and reimburse the MDNR for past costs associated with this site and for future costs associated with overseeing the RI/FS. A new agreement will be sought for the Remedial Action Plan (RAP), Remedial Design, Remedial Action (RA), and Operation and Maintenance (O&M). The United States Environmental Protection Agency (U.S. EPA) is kept apprised of site activities and schedule. This five-year review represents the first opportunity to review the site since construction of major remedial elements was completed. The RI was completed in January 1996, and the FS is currently under development. One of the main questions remaining is which properties to the northwest of the landfill have manganese (from the landfill) in the groundwater at concentrations which exceed drinking-water criteria or background. Background would be the enforceable criterion if it were found to be higher than the drinking water criterion. It is thought that exceedances of residential drinking-water criteria on adjacent properties can be addressed through the use of deed restrictions. In the fall of 2001, the LP carried out a work plan to see which downgradient parcels have manganese exceedances. More work is needed to both find a background location unaffected by the landfill and to determine how far downgradient the landfill impacts extend. The LPs will then need to restrict use of the contaminated aquifer for drinking water through the use of deed restrictions. A public comment period and public meeting will be held as part of the RAP approval process. The RAP will substitute for the Record of Decision (ROD) since this is a state-lead site.

Additional issues posed by the landfill include continuing exceedances of groundwater/surface water interface (GSI) criteria for ammonia and 1,4-dichlorobenzene in

the wetland north of the landfill, as well as rather extensive yellowish staining in this wetland at the toe of the landfill, presumably due to uncontrolled leachate migration.

On a parallel track with the RAP approval process, the LP has diligently pursued interim source control measures to address leachate which has accumulated inside the landfill. These measures were constructed in the summer of 2000 and included improved leachate extraction, landfill cap repairs, and improved stormwater drainage. These improvements are consistent with any foreseeable final remedy for the site. The U.S. EPA found these improvements complete enough to issue a Preliminary Close-Out Report signifying construction completion on September 26, 2001.

MDEQ staff believe that the above interim source control measures, including continued efforts to draw down perched leachate in the landfill, will bring the groundwater into compliance with GSI criteria by reducing the amount of leachate released to the groundwater and wetlands. However, because exceedances of residential aesthetic criteria are greater and more widespread than the existing GSI exceedances, it is unlikely that leachate-derived contamination of groundwater will be reduced enough to comply with residential criteria off-property, so a deed restriction or a notice of aesthetic impact will likely be necessary on some neighboring properties. While the MDEQ works with the LP to place language in deeds to restrict access to groundwater or place notices of aesthetic impact where needed, we will also work with the Muskegon County Health Department to prevent installation of new wells in the landfill plume.

The remedy is expected to be protective of human health and the environment upon completion of all remedial components (expected to require 2-4 years to complete). Some augmentations to the constructed elements and land use restrictions are still necessary. Attainment of groundwater cleanup goals protective of ecological endpoints will be expedited via enhancements to the leachate extraction system. In the interim, exposure pathways that could result in unacceptable human health risks are being controlled by virtue of the fact that the off-property landfill plume which exceeds health-based criteria is very small; also, local officials have committed to barring permits for new drinking water wells on property into which the landfill plume has migrated. Unacceptable ecological impacts are limited to the site property wetlands and are expected to come into compliance after the planned augmentation of certain identified remedial components.

## Five-Year Review Summary Form

SITE IDENTIFICATION		
<b>Site name (from WasteLAN):</b> SCA Independent Landfill		
<b>EPA ID (from WasteLAN):</b> MID000724930		
<b>Region:</b> 5	<b>State:</b> MI	<b>City/County:</b> Sullivan Township, Muskegon County
SITE STATUS		
<b>NPL status:</b> <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify) _____		
<b>Remediation status</b> (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
<b>Multiple OUs?*</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <b>Construction completion date:</b> September 26, 2001		
<b>Has site been put into reuse?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REVIEW STATUS		
<b>Lead agency:</b> <input type="checkbox"/> EPA <input checked="" type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
<b>Author name:</b> Bruce VanOtteren		
<b>Author title:</b> Project Manager	<b>Author affiliation:</b> MDEQ	
<b>Review period:</b> 9/15/2004 to 5/10/2005		
<b>Date(s) of site inspection:</b> December 6, 2004		
<b>Type of review:</b> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div><input type="checkbox"/> Post-SARA</div> <div><input type="checkbox"/> Pre-SARA</div> <div><input type="checkbox"/> NPL-Removal only</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div><input type="checkbox"/> Non-NPL Remedial Action Site</div> <div><input checked="" type="checkbox"/> NPL State/Tribe-lead</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div><input type="checkbox"/> Regional Discretion</div> </div>		
<b>Review number:</b> <input checked="" type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
<b>Triggering action:</b> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div><input type="checkbox"/> Actual RA Onsite Construction at OU # _____</div> <div><input type="checkbox"/> Actual RA Start at OU# _____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div><input type="checkbox"/> Construction Completion</div> <div><input type="checkbox"/> Previous Five-Year Review Report</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div><input checked="" type="checkbox"/> Other (specify) Interim RA Start</div> </div>		
<b>Triggering action date (from WasteLAN):</b> May 15, 2000		
<b>Due date (five years after triggering action date):</b> May 15, 2005		

### **Issues Affecting Protectiveness of Interim Measures**

1. Compile and present existing and forthcoming data both temporally and spatially to help evaluate the nature and extent of the ammonia and manganese plumes.
2. Water pools on top of the landfill during rain events; an evaluation of sufficient grade needs to be done.
3. Evaluate the efficacy of the leachate extraction system and whether the cap is effectively isolating the landfill waste from precipitation events, and determine whether additional extraction points are necessary. The goal will be to obtain a representative measure of the total leachate mounded within the landfill, and propose extraction wells to reduce leachate heads to comply with applicable state statutes, which will likely also help bring the manganese and ammonia plumes and degree of wetland staining into compliance.

### **Issues Affecting Protectiveness of Final Remedy**

1. Determine the representative background concentration of manganese in the wetland, and the full extent of the manganese plume exceeding the higher of the background concentration or 50 ug/L, the aesthetic drinking water criterion.
2. Establish a long-term monitoring network and sampling schedule for the manganese plume.
3. Evaluate whether hexavalent chrome and phosphorus are present in leachate and groundwater at concentrations exceeding criteria.
4. Evaluate whether compounds no longer in the Operation and Maintenance (O&M) monitoring plan have appeared in leachate or groundwater. This needs to be done every five years given that landfill indicator compounds may not be static.
5. Reestablish the monitoring point at MW207 which has been non-functional for several years.
6. Given all possible measurement points currently available, and those made available in the future, obtain better representations of the water table elevations throughout the site to assist with evaluations of the transport and fate of constituents. Include all monitoring wells on all maps. Include final field parameters: dissolved oxygen, oxidative/reductive potential, etc. in data tables.
7. Ensure that residential wells downgradient and sidegradient to the landfill plume continue to be unimpacted.
8. Establish permanent markers to warn trespassers about the site risks.



### **Recommendations Affecting Protectiveness of Interim Measures**

1. Compile a table of all available results of site measurements of ammonia concentrations in groundwater to include well number, date, measurements of temperature, pH, ionized/unionized multiplier, and calculated unionized ammonia. Map ammonia and manganese plumes, controlling for depth below groundwater table elevation. Present data so contaminant concentration trends over time can be evaluated.
2. Measure the grade of the cap and ensure a minimum of two percent grade.
3. Compile leachate pumping data and drawdown data over time from LH-1, presenting it in terms of leachate elevation relative to the top of LH-1 and relative to sea level. The compiled data need to show pumping volume and leachate elevation over time so monthly and seasonal variations can be observed, and to assist in determinations as to whether LH-1 is sufficient for extracting leachate from this impacted cell. Similarly compile precipitation and evaluate correlations to leachate production. Install a piezometer adjacent to LH-1 and at three points to the north in area 2 to evaluate the need for another leachate head well (Figure 3). Install new leachate extraction wells where deemed necessary by the new piezometer data. Run the U.S. EPA HELP model to evaluate landfill water/leachate balance.

### **Recommendations Affecting Protectiveness of Final Remedy**

1. Install new permanent background wells further east in the forested wetland. If background is not high, install wells downgradient of the Stapleton property (the second property west of the landfill) to determine the full extent of the manganese plume exceeding 50 ug/L, the aesthetic drinking water criterion and background.
2. Based upon the results of Follow-up Action #1 above, identify locations and depths for long-term monitoring network/system for the manganese plume, and place permanent wells. Follow similar procedure for ammonia. Reevaluate monitoring schedule and analyte list.
3. Monitor for hexavalent chrome and phosphorus in leachate and groundwater.
4. Analyze for complete scans for all wells and for leachate at the next annual sampling event and at least every five years thereafter.
5. Drill existing MW207 deeper into the aquifer. In addition, a deeper well needs to be added to this cluster since it is an important sentry location for both ammonia and manganese.
6. The O&M monitoring plan needs to be revised to require that complete, simultaneous water levels are taken prior to each sampling round, with water level measurements at all possible points from upgradient background, on-site, sidegradient, and downgradient locations. Water level monitoring points are to include all staff gauges, leachate head wells, and monitoring wells, including Thermo Chem TC-18 and TC-19 well clusters, and any future monitoring points including the staff gauges to be installed as part of the wetland mitigation project east of the site. The compiled data need to show water level variations over time.
7. Selected residential wells along Broadway Road west of the site need to be sampled and analyzed.
8. Finalize language for the granite site markers, determine optimal locations and add as element in RAP.

## **Protectiveness Statement**

The remedy is expected to be protective of human health and the environment upon completion of all remedial components (expected to require 2-4 years to complete). Some augmentations to the constructed elements and land use restrictions are still necessary. Attainment of groundwater cleanup goals protective of ecological endpoints will be expedited via enhancements to the leachate extraction system. In the interim, exposure pathways that could result in unacceptable human health risks are being controlled by virtue of the fact that the off-property landfill plume which exceeds health-based criteria is very small; also, local officials have committed to barring permits for new drinking water wells on property into which the landfill plume has migrated. Unacceptable ecological impacts are limited to the site property wetlands and are expected to come into compliance after the planned augmentation of certain identified remedial components.

# Five-Year Review Report

## I. Introduction

### The Purpose of the Review

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and recommendations to address them.

In September 2000, a new landfill cap, upgraded leachate capture and extraction, and new surface runoff control systems were construction-completed. This is the first five-year review since this construction, coming five years after the start of the interim RA construction. This five-year review is required since hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unrestricted use and unlimited exposure.

### Authority for Conducting the Five-Year Review

The MDEQ is preparing this five-year review pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The U.S. EPA interpreted this requirement further in the National Contingency Plan (NCP); 40 CFR §300.430(f)(4)(ii) states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

## **Who Conducted the Five-Year Review?**

The MDEQ, as the lead agency for this site, conducted this five-year review of elements constructed in 2000. This review was conducted from September 2004 through May 2005.

## **II. Site Chronology**

**TABLE 1**  
Site Chronology  
SCA Independent Landfill Superfund Site

<b>DATE</b>	<b>ACTIVITY</b>
1968	Landfill operations begin
Sep. 1968-May 1986	Landfilling operations
1980	Hydrogeologic Investigation-Walter Meinert
1982	Hydrogeologic Investigation-Keck
December 1982	Proposed Listing to NPL
September 1983	Final Listing
March 1983	SCA enters into Formal Closure Agreement with MDNR
1985	Hydrogeologic Investigation-Dell Engineering
1985	MDNR Resource Recovery Section sampled Black Creek
1986	Landfill stopped accepting waste
May 1987	Landfill closed
February 1991	MDNR Groundwater Report
1992	MDNR (now MDEQ) entered into a Cooperative Agreement with the LP which is WMI
1993	Administrative Order on Consent between MDEQ and the LP describes the mutual agreement for the LP to conduct a remedial investigation and a feasibility study of remedial alternatives.
November 1993	Removal of three underground storage tanks
October-November 1993	Limited Field Investigation

September 1994	Construction activities to improve final cover
August 1995	Landfill construction activities completed
1994 - December 1995	Remedial Investigation
January 1996	Remedial Investigation Report
April 1996	First Draft Feasibility Study/Remedial Action Plan report
July 1996	Request Mixing Zone Determination
1997 - 1998	Toxicity tests of wetland water samples
January 1999	Draft Feasibility Study/Remedial Action Plan report
May-October 2000	Source control remedial activities (final cover modification, surface water management modifications, leachate collection system modification, hotspot excavation)
September 2000	Construction Completion
September 2001	U.S. EPA issued the Preliminary Close-Out Report for the site, signifying construction completion.
June 2001	Begin long-term site monitoring
September 2001	Manganese Investigation

### III. Background

#### Physical Characteristics

The site is located in Muskegon County, approximately 12 miles west of Muskegon. It is in the northwest quarter of Section 6, Township 9 North, Range 15 West, Sullivan Township, Muskegon County, Michigan, east of Brooks Road between Summit Road and Black Creek at 4010 Broadway Road (Figure 1). The landfill is one-eighth mile south of Black Creek, a coldwater, designated trout stream which discharges to Mona Lake, four miles west, and to Lake Michigan, nine miles west. The entire landfill property occupies about 100 acres, 33 acres of which are taken up by the landfill itself. Landfilling was done at the edges of and in the wetlands on the south side of the Black Creek floodplain (Figure 2).

The site is in an ancient glacial lake plain. The land surface is of low relief. Locally, the land surface slopes northward toward the Black Creek floodplain. The site sits on the south edge of the Black Creek floodplain. The floodplain is approximately 1,000 feet wide, and Black Creek meanders back and forth within the floodplain. The southern edge of the floodplain is a bluff to flat sandy lake plain above. A cattail marsh exists between the edge

of the landfill and Black Creek to the north. This cattail marsh can be seen from aerial photographs and is very anomalous for the floodplain.

The site geology consists of lacustrine and eolian sands. The unconfined aquifer underlying the site is within these sands. Groundwater flow from the landfill is toward the Black Creek floodplain to the north, then west within the Black Creek floodplain. The base of the aquifer is a lacustrine clay unit. All of the monitoring wells on-site are screened within the unconfined aquifer. Contaminants typically associated with municipal landfills impact the groundwater. The contaminants include ammonia, manganese, iron, low-level volatile organic compounds, and chlorides, and they appear to be limited to the upper portions of the aquifer. A manganese plume emits out of the northwest part of the landfill. Rusty brown iron and manganese staining exists at the northern edge of the landfill, and appears to be associated with the venting landfill leachate, since it is not observed at the floodplain bluff east or west of the landfill.

Groundwater at the site flows northward, and a component of flow likely discharges to the wetland and to Black Creek, while some questions remain about groundwater transport and fate. Groundwater contamination was discovered during a 1980 hydrogeologic study performed by Walter Meinert.

The RI was conducted from November 1993 to December 1995. The RI groundwater monitoring results indicated the presence of ammonia, aluminum, arsenic, iron, manganese, nickel, and benzene in concentrations up to 100 times greater than MDEQ industrial drinking water criteria on the landfill property. Off-property, no residential wells are impacted, but manganese concentrations exceed the residential aesthetic criterion by 25 times in monitoring wells just upgradient from residential property.

GSI criteria for unionized ammonia are exceeded by a factor of up to three times in the adjacent wetlands, but not in the downgradient Black Creek. Site concentrations of manganese exceeded the first mixing-zone derived GSI concentration, but accompanying toxicological testing by the MDEQ indicated that the metal was not having a significant adverse effect on surface water endpoints. This contributed to the MDEQ being able to remove safety factors built into the criterion for manganese and acknowledging that a higher criterion was appropriate. Very high concentrations of total ammonia were found originating from the landfill, but the regulated chemical form, unionized ammonia, exceeded its GSI criterion in only a few locations, by factors up to three times.

Since the water table is only five to seven feet below the surface, WMI dug a large sand pit immediately east of the landfill as part of a wetland mitigation project. Their groundwater modeling showed that this would not affect the northerly groundwater flow direction at the site. The MDEQ has asked for staff gauges to be placed in the wetland to verify that the wetland does not draw groundwater from the east side of the landfill into the wetland.

## **Land and Resource Use**

The historic land use at the site has been landfilling operations from 1968 to 1986. Previous to that, there may have been minor sand mining operations. The current land use for the surrounding area is predominantly residential, wood lots, and some light industrial and commercial development. Private homes border the site to the south and west, and wetlands border the landfill to the east and north. It is likely that the mix of land uses similar to that described above will continue into the future.

The impacted water table aquifer underlying the site is currently being used as the main drinking water source in the area. The lower aquifer beneath the water table aquifer is rarely used in the area because of poor water quality and low yields.

The MDNR Endangered Species Assessment web site (<http://www.mcgi.state.mi.us/ESA/>) for Township 10N, Range 15W, Section 31 found the following: "Results indicate there is potential for endangered, threatened, or special concern species, high quality natural communities, or other unique natural features to occur at or near your site of interest."

Two other Superfund sites are located near the site. The ThermoChem Superfund site is located directly opposite the site on the north side of Black Creek. The Bofors Nobel Superfund site is located approximately 1.25 miles east-northeast of the site. Both of these other sites border Black Creek.

## **History of Contamination**

Little is known of the early history of the landfill, but United States Geological Survey topographic maps from 1967 and earlier show a sand pit where the landfill is now located.

The SCA Independent Landfill operated from 1968 to 1986 as a sanitary landfill. The landfill accepted municipal solid waste (comprised of residential, commercial, and industrial refuse), including foundry sand and fly ash from Muskegon and Ottawa Counties. Waste deposition at the site occurred in four distinct disposal areas and stages, only one of which is adequately lined with three feet of clay. The first cell was in the northern part of the site and was not lined; it was likely placed in the sand pit. The landfill was officially closed and capped in June 1987. Three underground storage tanks were removed in 1993.

The groundwater flow from the site discharges to the adjacent downgradient wetlands, and to a much lesser degree to Black Creek. Primary contaminants of groundwater, surface water, and wetlands are ammonia and manganese, with isolated detections of other inorganic and organic contaminants.

Xylene, benzene, dichlorobenzene, 1,1-dichloroethane, and toluene continue to be sporadically detected in monitoring wells downgradient of the site. Hits of landfill-type contaminants in Black Creek are similarly sporadic.

The site has 33 existing monitor wells. WMI has been sampling 11 of them at least annually as part of a monitoring plan since June 2001.

### **Initial Response**

A biological study of the wetlands, conducted by the MDNR in May 1980, documented elevated levels of anaerobic organisms in the immediate area of leachate outbreaks.

The entire waste disposal area was capped and is being maintained and monitored in accordance with the MDNR-approved closure plan.

WMI discovered three underground storage tanks on the site in September 1993, one of which had leaked waste oil. The tanks were removed and disposed of in November 1993, along with 725 cubic yards of contaminated soil. Groundwater was sampled downgradient from the tanks and found to be uncontaminated.

### **Basis for Taking Action**

The site was placed on the NPL in 1984. It was decided that the state of Michigan would lead the RI/FS, funding for which would come from a federal Superfund grant from the U.S. EPA. The RI/FS was conducted in three phases (phases I, II and IIB) from September 1987 to May 1991.

### **Remedial Investigation**

Specific activities conducted between 1994 and 1995 include:

- Landfill cover borings,
- Leachate head wells installation,
- Landfill gas vent sampling,
- Surface water and sediment sampling,
- Staff gauge installation,
- Borehole drilling and soil sampling,
- Borehole abandonment,
- Surface soil sampling,
- Barhole probe installation and sampling,
- Groundwater monitoring well installation and development,
- Temporary well point installation,
- Groundwater sampling,
- In-field hydraulic conductivity testing,
- GSI sampling,
- Existing monitoring well abandonment,
- Existing gas probe abandonment,
- Ecological characterizations,
- Site survey.



Conclusions drawn from above investigations:

- Leachate is mounded high inside the landfill.
- Groundwater contamination is mostly in the shallow, unconfined aquifer.
- Landfill gas generation is not extensive.
- Residential wells appear to be unimpacted.
- Black Creek is not extensively impacted.

#### **IV. Remedial Actions**

In 1992, the MDNR (now the MDEQ) entered into a Cooperative Agreement with the LP. The follow-up Administrative Order on Consent in 1993 between the MDEQ and the LP describes the mutual agreement for the LP to conduct an RI, and an FS of cleanup alternatives. The LP completed the RI with state approval in January 1996. In mid-1996, the MDEQ received and commented on the LP's draft FS. In late 1996, the LP conducted additional groundwater and surface water monitoring to confirm that zinc poses no unacceptable risk to the surface water.

In 1997, the MDEQ conducted toxicity tests of wetland water samples to evaluate the impact of high manganese and ammonia concentrations on the wetland ecosystem and Black Creek. The samples were taken on the northwest edge of the plume. The results showed toxicity in the upgradient groundwater but no toxicity in the wetlands.

In 2000, the LP implemented interim measures to control leachate pursuant to state law under MDEQ oversight. The constructed remedy includes improvement of the waste cover and surface water drainage; leachate management system modification, including installation of a larger leachate collection tank and improved piping; and excavation of surface soil from on-site hot spots. In September 2001, the U.S. EPA issued the Preliminary Close-Out Report for the site, signifying construction completion.

The LP began long-term groundwater and surface water monitoring in 2001. The MDEQ is in the process of requiring the LP to obtain deed restrictions for nearby residents to prohibit the use of private wells for drinking water. When the LP obtains the deed restrictions and other issues identified below are addressed, the RAP can be submitted.

#### **Remedy Selection**

Many elements of the final remedy were constructed in 2000 pursuant to state law requiring immediate measures to mitigate acute impacts. These elements are described in the next section.

Remaining elements of the final remedy will likely include measures to draw down mounded leachate within the landfill and measures to restrict drinking water access to groundwater within the manganese plume. The final remedy will be described in the MDEQ-approved RAP, which replaces the ROD for a state-lead site.

## **Implementation of Interim Response**

Interim response measures included improved leachate extraction, landfill cap repairs, and improved storm water drainage. These improvements are consistent with any foreseeable final remedy for the site. The U.S. EPA found these improvements sufficient to issue a Preliminary Close-Out Report on September 26, 2001.

### **V. Progress Since the Construction Completion**

In the fall of 2001, the LP carried out a work plan to see which downgradient parcels have manganese exceedances. A Geoprobe was used to vertical aquifer sample in 13 locations, 4 of which were background locations. Two permanent wells were placed at the toe of the landfill to provide control in areas with well spacings that were too great.

This investigation found that the manganese plume extends to at least two properties downgradient to the west, but impacts seem to be limited to the floodplain groundwater. Only the aesthetic drinking water criterion (50 ug/L) is exceeded, so deed restrictions or a notice of aesthetic impact could be used to mitigate adverse impacts from this plume. The GSI criteria were not exceeded on the adjacent properties.

The Muskegon County Health Department is aware that groundwater on some properties downgradient from the landfill are contaminated, and they have agreed to bar installations of new drinking water wells in these areas while restrictive covenants or notices are being put in place as needed.

The health-based drinking water criterion for manganese is much higher (860 ug/L) than the aesthetic criterion, and at most one property, a residence, has groundwater contaminated above this concentration. This will not be confirmed until MW-207 is made operable again. The well at this residence is sidegradient to the plume and it has been tested to confirm it has not been impacted by the landfill plume.

The new wells at the toe of the landfill provided valuable data on the heart of the landfill manganese and ammonia plumes. Exceedances of the ammonia and 1,4-dichlorobenzene GSI criteria were observed in these wells at the toe of the landfill.

### **VI. Five-Year Review Process**

#### **Administrative Components**

The LP (WMI) was notified of the start of the five-year review in September 2004. The five-year review was led by Mr. Bruce VanOtteren, the MDEQ Project Manager for the site, and included Mr. John Esch, the MDEQ Project Geologist, and Mr. Ron Murawski, the U.S. EPA Remedial Project Manager.

## **Community Notification and Involvement**

Based upon prior community involvement, the MDEQ decided to publish a notice in the local newspaper that the five-year review was being conducted. The public notice was published on February 20, 2005, in the Muskegon Chronicle (please see Attachment 2). Neither the MDEQ nor the U.S. EPA received any responses from the public.

The completed five-year review will be placed in the Egelston Township Library (tel: 231-788-6477) information repository, and a notice will be published in the Muskegon Chronicle notifying communities of the completion of the review and summarizing the review's findings. It will also be found at the U.S. EPA's website at: [www.epa.gov/region5/superfund/fiveyear/fyr\\_index.html](http://www.epa.gov/region5/superfund/fiveyear/fyr_index.html). Additionally, interested persons can follow site progress by reading the updated fact sheets found at the U.S. EPA's website [www.epa.gov/superfund/sites/npl/mi.htm](http://www.epa.gov/superfund/sites/npl/mi.htm). These fact sheets are updated semiannually. Also, updated site information can be obtained through the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database found at the U.S. EPA's website.

## **Document Review**

This five-year review consisted of a review of relevant documents including the RI, groundwater monitoring reports, and the Manganese Delineation Report.

## **Data Review**

The principal contaminants at the site, found initially in the RI, continue to be manganese, ammonia and organic compounds including chlorobenzene, benzene, and 1,4-dichlorobenzene. Most of these contaminants' concentrations in groundwater have tended to be stable or slowly decreasing over time, but they in part continue to be in excess of, or near applicable cleanup criteria. In 1997 and 1998, the state performed a mixing zone determination (MZD), calculating target criteria for the site metals and compounds of interest for groundwater/surface water compliance monitoring purposes (Table 2). Concentrations of ammonia continue to exceed the MZD concentration of 29 ug/L at wells at the northern toe of the landfill. Concentrations of 1,4-dichlorobenzene exceed the generic GSI criterion of 13 ug/L in a similar area at the northern toe of the landfill. Concentrations of manganese exceed the aesthetic criteria for drinking water from the toe of the landfill north into the wetland and to some extent westward onto neighboring properties. The upgradient, background concentration of manganese needs to be more definitively measured in order to fully evaluate the site's contribution to the downgradient exceedances. Concentrations of benzene and other volatile organic compounds sporadically exceed drinking water criteria on the landfill property; therefore, a deed restriction is needed for this property limiting consumptive use of the groundwater.

**Table 2 – Site Contaminant Criteria**

**SCA Independent Landfill  
Contaminant Criteria (micrograms / liter)**

February 2005	GSI		Drinking Water	
	Generic*	MZD	Aesthetic	Health Based
Arsenic	150			50
Barium	895			2,000
Beryllium	13			
Boron	1,900			500
Cadmium	3	7		
Chromium (III)	120	198		
Chromium (VI)		11		
Copper	16			
Lead	14	86		
Manganese	3,485		50	
Nickel	92			
Vanadium	12			
Zinc	209	402		2400
Unionized Ammonia		29		
All Nitrogen sources				10,000
Benzene	200			5
1,4-Dichlorobenzene	13			
1,1-Dichloroethane	740			
Chlorobenzene	47			100
Chloroethane				430
Toluene	140			

\*The MZD criteria apply, where noted.

## **Site Inspection**

The MDEQ conducted a site inspection on December 6, 2004. The purpose of the site inspection was to physically observe all aspects of the site, from site security to the integrity of landfill cap and monitoring well casings, to a review of the leachate extraction operations. A summary of the site inspection is as follows:

**Site Security:** Site fencing was inspected, and site security was discussed with WMI representative, Phil Mazor, and it was found that the current fencing and signage was effective in deterring trespassers. Better signage and monuments will be required as part of the RAP.

**Landfill Cap Integrity:** The site inspection found no insufficiencies to the landfill cap integrity and vegetative cover.

**Leachate Handling Systems:** The inspection was limited to observing leachate handling control panels, the main leachate sump, and the leachate collection tanks. These systems were observed to be in very good, functional condition. It was too late in the season to conduct an effective yearly comparative evaluation of the yellowish staining which has long been observed in the wetland, most prominently in summer, and which is likely indicative of uncontrolled leachate from the landfill.

**Surface Runoff Water Handling Systems:** Drainage ways, culverts, and collection ponds were functioning as designed. One small area at the northern edge of the landfill adjacent to the access road was ponding water due to heavy equipment having been parked on drainage ways, causing them to be blocked due to rutting. Since water pools on top of the landfill during rain events, an evaluation of sufficient grade needs to be done.

**Monitoring Wells:** The vast majority of monitoring wells are in good condition, with intact protective casings and concrete pads. A couple of wells need to have their pads repaired.

## **Interviews**

See interview records in Attachment 1.

## **VII. Technical Assessment**

### **Question A: Is the remedy functioning as intended?**

#### **Interim Remedial Action Performance**

The source control measures completed in 2000 have largely eliminated the leachate outbreaks previously observed. Active and passive leachate collection systems, including a leachate head well, LH-1, are drawing down the leachate in the area 3 disposal area, reducing the mounding that had been present. More work is needed to evaluate whether additional leachate extraction or cap work is needed, especially in light of the seasonal component to the volume of leachate produced. But a review of documents, applicable or relevant and appropriate requirements, risk assumptions, groundwater monitoring data, and

the results of the site inspection indicate that the site is not currently posing egregious threats to human health or the environment.

The principal contaminants at the site, found initially in the RI, continue to be manganese, ammonia, chlorobenzene, benzene, and 1,4-dichlorobenzene in groundwater. Most of these contaminants' concentrations are stable or slowly decreasing over time, but they in part continue to be in excess or near applicable cleanup criteria. Concentrations of ammonia and 1,4-dichlorobenzene exceed the MZD concentration of 29 ug/L and the generic criterion of 13 ug/L, respectively, at wells at the northern tip of the landfill. Concentrations of manganese exceed the aesthetic criteria for drinking water from the toe of the landfill north into the wetland and to some extent westward onto neighboring properties.

### **System Operations**

Operating procedures appear to be adequate to maintain the effectiveness of the remedial systems currently in place, but additional leachate extraction systems may be needed to sufficiently control landfill leachate generation.

### **Early Indicators of Potential Issues**

After five years of leachate extraction in LH-1, leachate head levels are still higher than expected. This indicates that one extraction point may not be sufficient for the impacted cell. LH-1 is the only means currently available for monitoring the leachate level in area 2, an approximately 12-acre area, so installation of additional piezometers and/or leachate head wells will be necessary. Continuing exceedances of ammonia in the wetland and, potentially, manganese, contingent upon the true background concentrations, suggest that additional leachate control may be necessary.

### **Implementation of Institutional Controls and Other Measures**

On-site deed restrictions to limit consumptive use of the groundwater are currently under review and will be implemented with the upcoming RAP. Similar restrictions are being sought for affected downgradient properties. Currently, the LP is conducting an extensive review of the efficacy of existing and planned institutional controls, including deed restrictions, for review by the MDEQ.

**Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the construction of the interim remedial elements still valid?**

In the past five years, no major changes have been made to exposure assumptions, toxicity data, cleanup levels, or remedial action objectives used at the time of the construction of the interim remedial elements.

### **Changes in Standards and TBCs**

Cleanup criteria were originally established for this site in October 14, 1996, including an MZD which was done for the Remediation and Redevelopment Division by the Water Quality Division [now Water Bureau (WB)] of the MDEQ. Toxicity work, including some done for this site, led the WB to establish a new aquatic toxicity-based criterion for manganese. These toxicity studies indicated that the aquatic toxicity of manganese is less than previously thought. Also, with the presence of additional toxicity studies to draw on for criteria establishment, it was possible to drop the high safety factor in the previous calculation. The result is that manganese in site groundwater no longer appears to pose an ecological impact. The drinking water criterion, which is higher than the updated GSI criterion, then became the remaining driving criterion.

No other changes in standards have been made, either at the federal or state level, which would alter the protectiveness of the remedy.

### **Changes in Exposure Pathways**

There have been no changes in the land use of the landfill property or potentially impacted downgradient properties. The landfill area is fenced. With regard to the groundwater contaminant plume, no major changes in land use, which would require water withdrawals in the contaminated portion of the aquifer, have been identified. The plume exists largely within the floodplain which is very unlikely to see any form of water withdrawals in the interim period before land use restrictions are imposed.

No new human health or ecological routes of exposure or other receptors were identified during this review that would call into question the protectiveness of the remedy. No new contaminants or contaminant sources have been identified.

The only human health risk continues to be the longstanding manganese plume that extends onto downgradient residential properties and is still being investigated. The only significant ecological risk factors identified are the ammonia and 1,4-dichlorobenzene plumes that extend from the landfill into the wetland; however, they do not appear to significantly migrate beyond the landfill property.

### **Changes in Risk Assessment Methods**

No changes in standard risk assessment methods were identified during this five-year review.

### **Expected Progress Toward Meeting Remedial Action Objectives**

With regard to the progress of the groundwater cleanup, it is too early to make a definitive statement as to when the remedy will achieve cleanup goals. The remedy itself has yet to be finalized. Further, not enough data is available on the ammonia plume, and too many unknowns are inherent in the landfill source of the ammonia to make a good prediction as to cleanup goal attainment. Thus, the MDEQ is just giving a very broad range of possible cleanup duration estimates, ranging from 5 to 15 years.

### **Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

An MDNR Endangered Species Assessment finding shows the potential for eastern box turtles, which are a species of special concern in Michigan, to be found in the Black Creek floodplain. No other information, such as ecological impacts, unforeseen land or groundwater use changes have been identified as part of this five-year review that would call into question the protectiveness of the remedy.

### **Technical Assessment Summary**

According to the data reviewed, the site inspection, and interviews, the remedy appears to be functioning fairly well, though as discussed in the issues identified below in section VIII, some evaluations and construction augmentations need to be undertaken to provide sufficient assurance as to the protectiveness of the remedy.

## **VIII. Issues**

Concentrations of ammonia in groundwater continue to exceed GSI criteria in the wetland, and manganese concentrations in groundwater continue to exceed aesthetic criteria downgradient. Aside from these longstanding issues, the MDEQ identified nothing during the five-year review that would further question the protectiveness of the current remedial systems, though some unknowns were identified which warrant evaluation. To address these knowns and unknowns, the following steps need to be taken by WMI.



### Issues Affecting Protectiveness of Interim Measures

Issues Affecting Protectiveness of <u>Interim Measures</u>	Affects Protectiveness	
	Current (Y/N)	Future (Y/N)
1. Compile and present existing and forthcoming data both temporally and spatially to help evaluate the nature and extent of the ammonia and manganese plumes.	N	Y
2. Water pools on top of the landfill during rain events; an evaluation of sufficient grade needs to be done.	N	Y
3. Evaluate the efficacy of the leachate extraction system and whether the cap is effectively isolating the landfill waste from precipitation events, and determine whether additional extraction points are necessary. The goal will be to obtain a representative measure of the total leachate mounded within the landfill, and propose extraction wells to reduce leachate heads to comply with applicable state statutes, which will likely also help bring the manganese and ammonia plumes, and degree of wetland staining into compliance.	Y	Y

### Issues Affecting Protectiveness of Final Remedy

Issues Affecting Protectiveness of <u>Final Remedy</u>	Affects Protectiveness	
	Current (Y/N)	Future (Y/N)
1. Determine the representative background concentration of manganese in the wetland, and the full extent of the manganese plume exceeding the higher of the background concentration or 50 ug/L, the aesthetic drinking water criterion.	N	Y
2. Establish a long-term monitoring network/system for the manganese plume.	N	Y
3. Evaluate whether hexavalent chrome and phosphorus are present in leachate and groundwater at concentrations exceeding criteria.	Y	Y
4. Evaluate whether compounds no longer in the O&M monitoring plan have appeared in leachate or groundwater. This needs to be done every five years given that landfill indicator compounds may not be static.	Y	Y
5. Reestablish the monitoring point at MW207 which has been non-functional for several years.	N	Y
6. Given all possible measurement points currently available, and those made available in the future, obtain better representations of the water table elevations throughout the site to assist with evaluations of the transport and fate of constituents. Include all monitoring wells on all maps. Include final field parameters: dissolved oxygen, oxidative/reductive potential, etc. in data tables.	N	Y
7. Ensure that residential wells downgradient and sidegradient to the landfill plume continue to be unimpacted.	N	Y
8. Establish permanent markers to warn trespassers about the site risks.	N	Y

## IX. Recommendations and Follow-up Actions

Recommendations and follow-up actions for the interim and final remedy issues identified in section VIII are identified below.

### Issues and Recommendations Affecting Protectiveness of Interim Measures

Issues Affecting Protectiveness of <u>Interim Measures</u>	Recommendations/ Follow-up Actions*	Milestone Date	Affects Protectiveness? (Y/N)	
			Current	Future
1. Compile and present existing and forthcoming data both temporally and spatially to help evaluate the nature and extent of the ammonia and manganese plumes.	Compile a table of all available results of site measurements of ammonia concentrations in groundwater to include well number, date, measurements of temperature, pH, ionized/unionized multiplier, and calculated unionized ammonia. Map ammonia and manganese plumes controlling for depth below groundwater table elevation. Present data so contaminant concentration trends over time can be evaluated.	Feb 2006	N	Y
2. Water pools on top of the landfill during rain events; an evaluation of sufficient grade needs to be done.	Measure the grade of the cap and take actions to ensure a minimum of two percent grade.	Sep 2005	N	Y
3. Evaluate the efficacy of the leachate extraction system and whether the cap is effectively isolating the landfill waste from precipitation events.	Compile leachate pumping data and drawdown data over time from LH-1, presenting it in terms of leachate elevation relative to the top of LH-1 and relative to sea level. Show pumping volume and leachate elevation over time so monthly and seasonal variations can be observed. Compile precipitation data and evaluate correlations to leachate production. Install a piezometer adjacent to LH-1 and at three points to the north in area 2 to evaluate the need for more leachate head wells (Figure 3). Install new extraction wells where deemed necessary. Run the U.S. EPA HELP model to evaluate landfill water/leachate balance.	Nov 2005	Y	Y

## Issues and Recommendations Affecting Protectiveness of Final Remedy

Issues Affecting Protectiveness of <u>Final Remedy</u>	Recommendations/ Follow-up Actions*	Milestone Date	Affects Protectiveness? (Y/N)	
			Current	Future
1. Determine the representative background concentration of manganese in the wetland and the full extent of the manganese plume.	Install new permanent background wells further east in the forested wetland. If background is not high, install wells downgradient of the Stapleton property (the second property west of the landfill) to determine the full extent of the manganese plume exceeding 50 ug/L, the aesthetic drinking water criterion and background.	Sep 2005	N	Y
2. Establish a long-term monitoring network/system for the manganese and ammonia plumes.	Based upon the results of Follow-up Action #1 above, identify locations and depths for long-term monitoring network/system for the manganese plume, and place permanent wells. Follow similar procedure for ammonia. Reevaluate monitoring schedule and analyte list.	Sep 2007	N	Y
3. Evaluate whether hexavalent chrome and phosphorus are present in leachate and groundwater at concentrations exceeding criteria.	Monitor for hexavalent chrome and phosphorus in leachate and groundwater.	Sep 2005	Y	Y
4. Evaluate whether compounds no longer in the O&M monitoring plan have appeared in leachate or groundwater. This needs to be done every five years given that landfill indicator compounds may not be static.	Analyze for complete scans for all wells and for leachate at the next annual sampling event and at least every five years thereafter.	Feb 2006	Y	Y
5. Reestablish the monitoring point at MW207 which has been non-functional for several years.	Drill existing MW207 deeper into the aquifer. In addition, a deeper well needs to be added to this cluster since it is an important sentry location for both ammonia and manganese.	Sep 2005	N	Y
6. Given all possible measurement points currently available, and those made available in the future, obtain better representations of the water table elevations throughout the site.	The O&M monitoring plan needs to be revised to require that complete, simultaneous water levels are taken prior to each sampling round, with water level measurements at all possible points from upgradient background, on-site, sidegradient, and downgradient locations. Water level monitoring points are to include all staff gauges, leachate head wells, and monitoring wells, including Thermo Chem TC-18 and TC-19 well clusters, and any future monitoring points including the staff gauges to be installed as part of the wetland mitigation project east of the site. The compiled data needs to show water level variations over time.	Feb 2006	N	Y
7. Ensure that residential wells down and side-gradient to the landfill plume continue to be unimpacted.	Selected residential wells along Broadway Road west of the site need to be sampled and analyzed.	Feb 2006	N	Y
8. Establish permanent markers to warn trespassers about the site risks.	Finalize language for the granite site markers, determine optimal locations and add as element in the RAP.	Sep 2007	N	Y

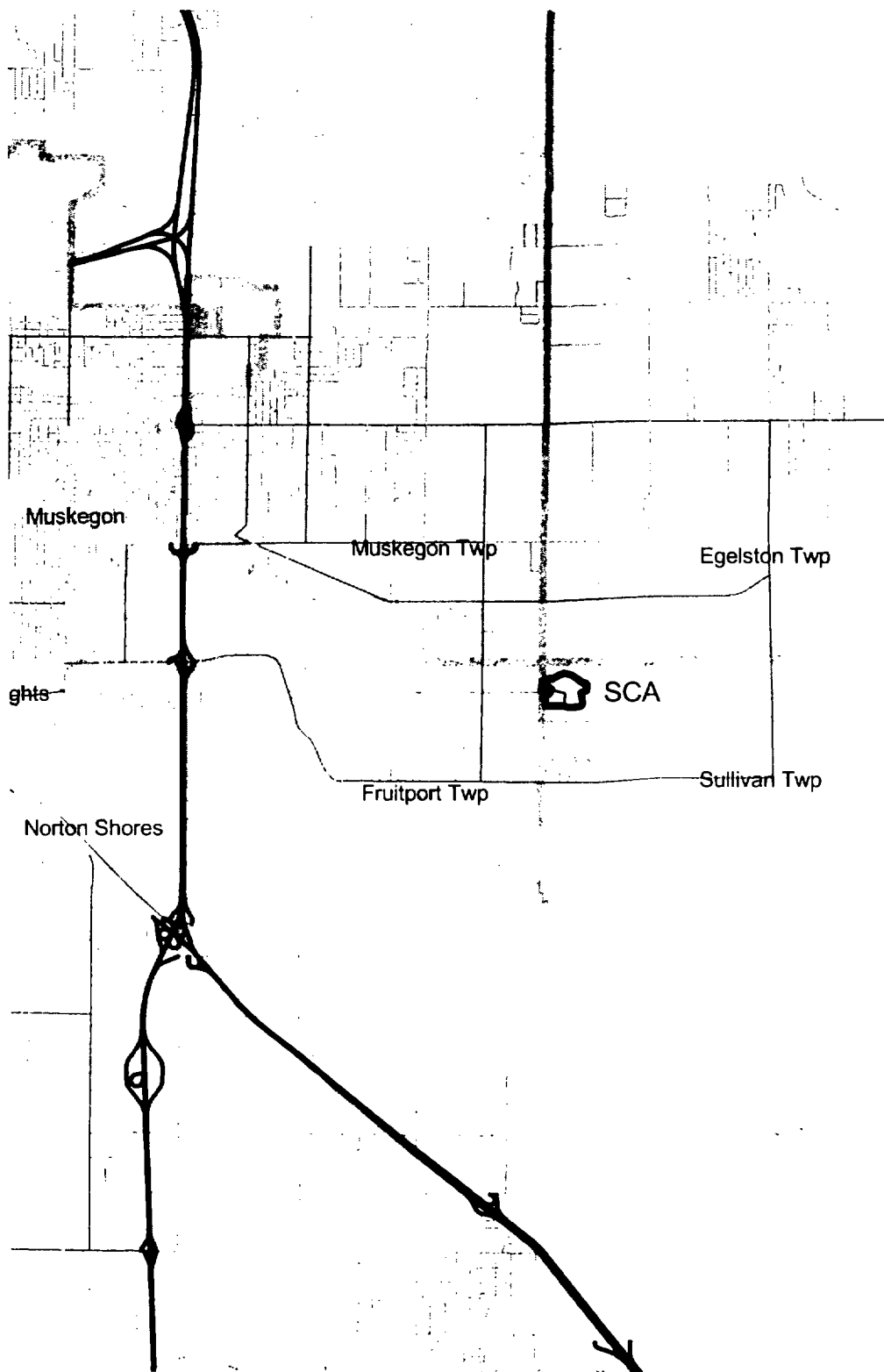
\*The party responsible for implementing the above recommendations is the LP, WMI, and the oversight agency will be MDEQ.

## **X.     Protectiveness Statement**

The remedy is expected to be protective of human health and the environment upon completion of all remedial components (expected to require 2-4 years to complete). Some augmentations to the constructed elements and land use restrictions are still necessary. Attainment of groundwater cleanup goals protective of ecological endpoints will be expedited via enhancements to the leachate extraction system. In the Interim, exposure pathways that could result in unacceptable human health risks are being controlled by virtue of the fact that the off-property landfill plume which exceeds health-based criteria is very small; also, local officials have committed to barring permits for new drinking water wells on property into which the landfill plume has migrated. Unacceptable ecological impacts are limited to the site property wetlands and are expected to come into compliance after the planned augmentation of certain identified remedial components.

## **XI.    Next Review**

Because hazardous substances remain at the site above levels that allow for unrestricted use and unlimited exposure, another review will be conducted in five years. The next review will be completed by May 2010.

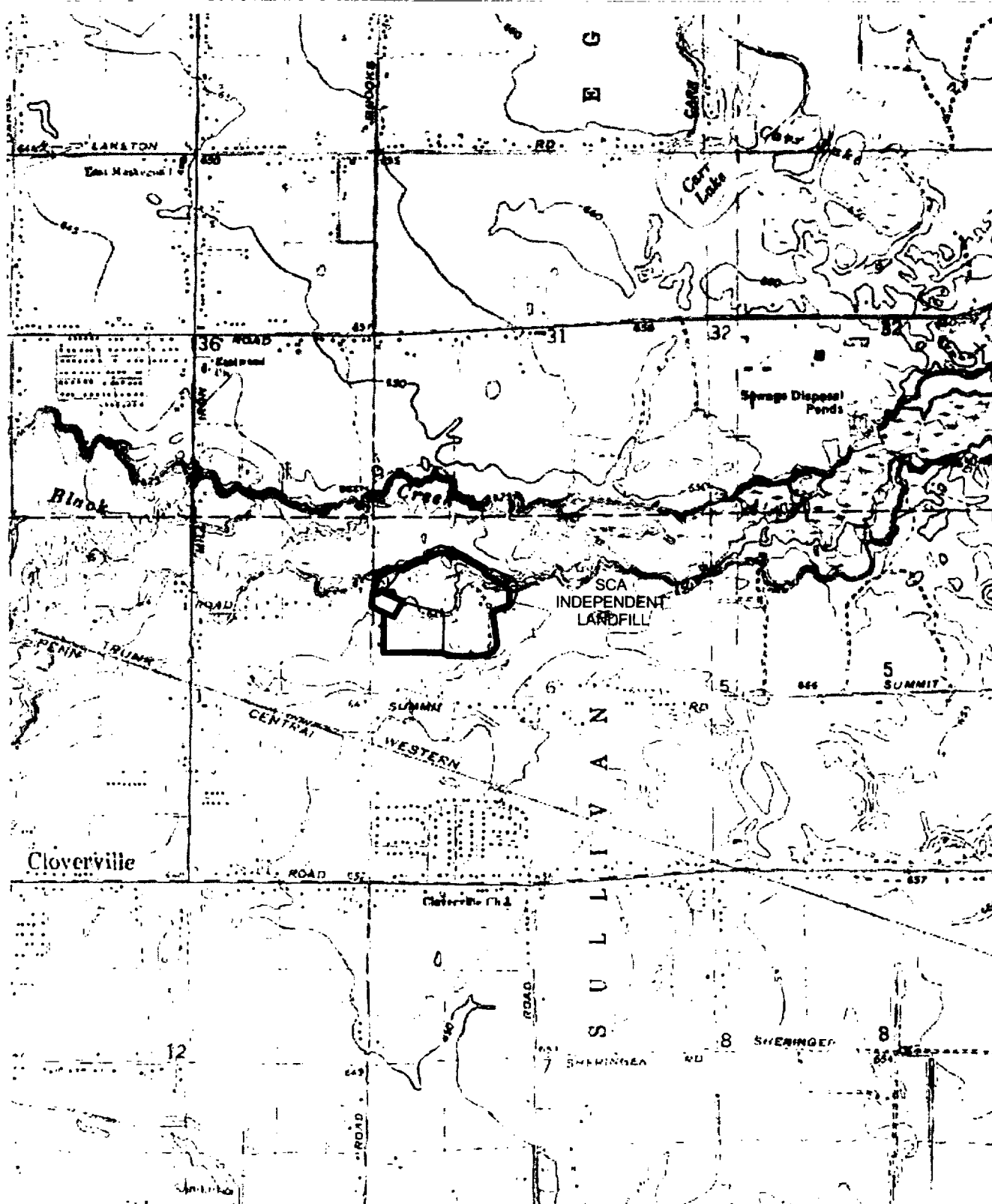


MDEQ-RRD-SUPERFUND  
JOHN ESCH 4-13-2005

SCA INDEPENDENT LANDFILL  
MUSKEGON, MICHIGAN  
FIGURE 1 SITE OVERVIEW

0 1 Miles



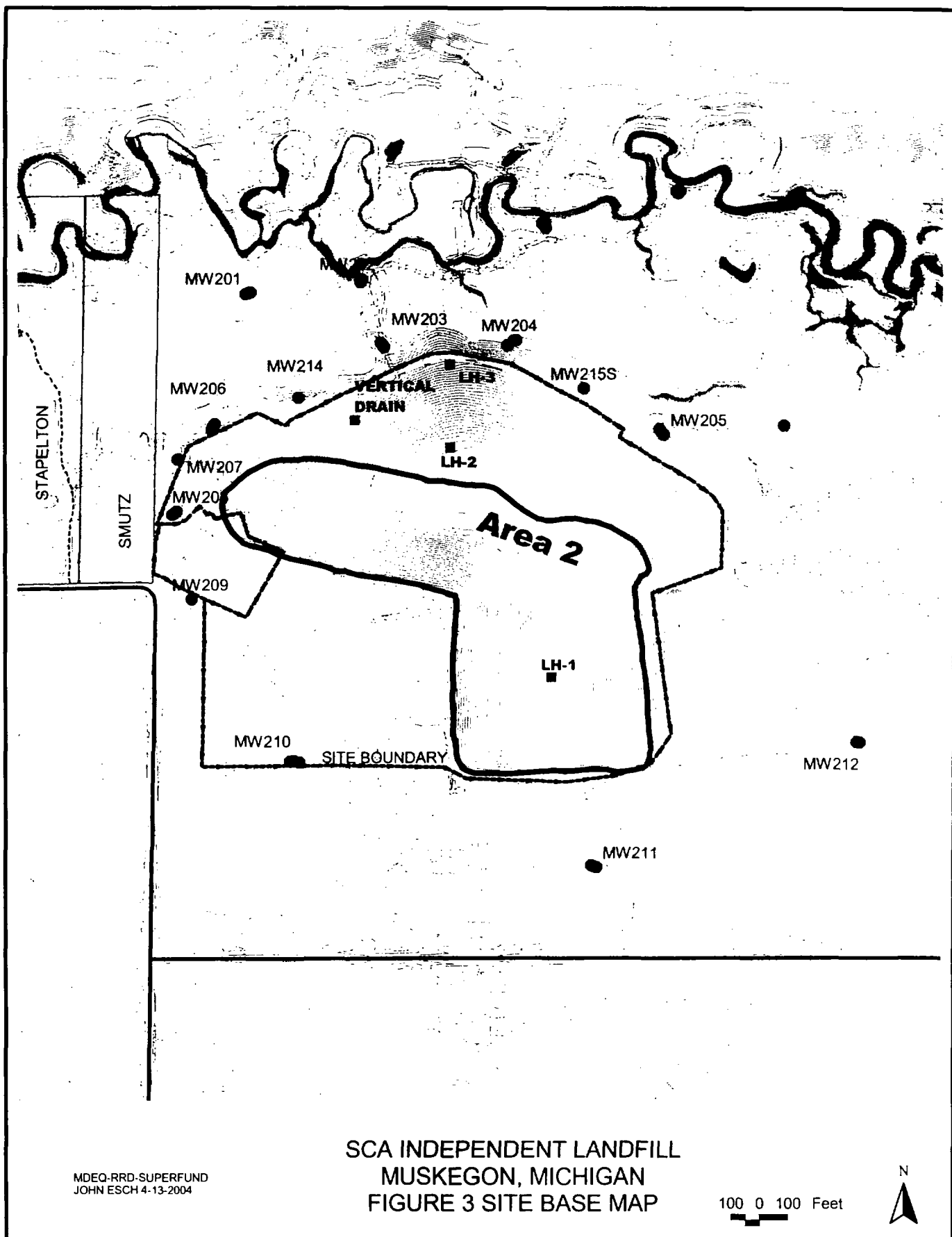


SCA INDEPENDENT LANDFILL  
MUSKEGON, MICHIGAN  
FIGURE 2 TOPOGRAPHIC MAP

MDEQ-RRD-SUPERFUND  
JOHN ESCH 4-13-2005

0 1000 Feet





## Attachment 1 – Interview Reports

INTERVIEW RECORD		
Site Name: SCA Independent Landfill		EPA ID No.: MID000724930
Subject:		Time: 3:20PM Date: 4/7/05
Type: <input type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing
Location of Visit:		
Contact Made By:		
Name: Bruce VanOtteren	Title: Project Manager	Organization: MDEQ
Individual Contacted:		
Name:	Title: Neighboring resident	Organization: NA
Telephone No:	Street Address:	
Fax No:	City, State, Zip: Muskegon Heights, MI	
E-Mail Address:		
Summary Of Conversation		
<p><b>1. What is your overall impression of the project? (general sentiment)</b>  does not know much about the landfill. He only knows what we've told him when we sought access to monitor for leachate plumes in his floodplain ground north of his house.</p> <p><b>2. What effects have site operations had on the surrounding community?</b>  knows of no effects from site operations that the landfill has had on the surrounding community. The only thing he knows is that tanker trucks frequently stop by the site [to collect leachate].</p> <p><b>3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.</b>  knows of no community concerns regarding the landfill.</p> <p><b>4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.</b>  Mr knows about no cases of vandalism or trespassing or responses by local authorities at the site, other than police cars seem to like to park in the landfill drive, presumably to monitor traffic, although the 10 mph curve by the entrance slows traffic rather effectively.</p> <p><b>5. Do you feel well informed about the site's activities and progress?</b>  expressed an interest in just talking with Mr. VanOtteren during upcoming site work, and felt no strong need for a public meeting or a public availability session.</p> <p><b>6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?</b>  only wanted to say that if we need to ever again sample groundwater in the floodplain that we might want to give more consideration to collecting the purge water rather than letting it out on the ground surface. The interviewer, Mr. VanOtteren, assured Mr. at the purge water posed no risks to wetland life or human health, and that we were only monitoring to find the extent of the aesthetic/taste impacts.</p>		



INTERVIEW RECORD			
Site Name: SCA Independent Landfill		EPA ID No.: MID000724930	
Subject: Five-Year Review Site Background Data Gathering		Time: 3:00pm	Date: 4/20/05
Type: <input type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing	
Location of Visit:			
Contact Made By:			
Name: Bruce VanOtteren		Title: Project Manager	Organization: MDEQ
Individual Contacted:			
Name:		Title:	Organization:
Telephone No: confidential		Street Address:	
Fax No:		City, State, Zip: Muskegon Heights, MI	
E-Mail Address:			
Summary Of Conversation			
<p><b>1. What is your overall impression of the project? (general sentiment):</b>  Generally no complaints about the current management. says she can talk with Mr. Mazor (WMI) and is relatively satisfied with operations.</p> <p><b>2. What effects have site operations had on the surrounding community?</b>  Ms. Broudeur has lived in her residence a long time, even before SCA bought the landfill property. When SCA owned the landfill, there were many problems, including the waste never being covered with a daily cover. used to find holes dug four feet deep in perfect squares between two tracks. The holes were filled with red liquid. When WMI bought the landfill, operations became much better. She is concerned about runoff to the south. There used to be sumac in the wetland southwest of the landfill, and every three or four years, the trees in the area would die. Now there are trees again. She is concerned that the wetlands are off-limits to people.</p> <p><b>3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.</b> is not aware of any community concerns regarding the landfill.</p> <p><b>4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.</b>  : has a big problem with people trespassing on her land to get to the landfill property. She would like a fence around southwest landfill corner property to keep out trespassers.</p> <p><b>5. Do you feel well informed about the site's activities and progress?</b>  She did not attend the last public meeting regarding the remedial investigation findings, and she was unaware of the 1999 construction work – she thought the heavy equipment noises were from sand mining to the east.</p> <p><b>6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?</b>  No, other than the request for a fence mentioned above. She wanted something done about runoff from the landfill, but when I told her a drain had been installed in 1999 to drain water from south of the landfill, she did acknowledge that flooding had seemed less in the last few years.</p>			

<b>INTERVIEW RECORD</b>			
<b>Site Name:</b> SCA Independent Landfill		<b>EPA ID No.:</b> MID000724930	
<b>Subject:</b> Five-Year Review Site Background Data Gathering		<b>Time:</b> 9:05am	<b>Date:</b> 5/3/05
<b>Type:</b> <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other <b>Location of Visit:</b> NA		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing	
<b>Contact Made By:</b>			
<b>Name:</b> Bruce VanOtteren		<b>Title:</b> Project Manager	
<b>Organization:</b> MDEQ			
<b>Individual Contacted:</b>			
<b>Name:</b> Vicki Webster		<b>Title:</b> Environmental Health Supervisor	
<b>Organization:</b> Muskegon Co. Health Department			
<b>Telephone No:</b> 231-724-1259		<b>Street Address:</b> 209 East Apple Avenue	
<b>Fax No:</b>		<b>City, State, Zip:</b> Muskegon, MI 49442	
<b>Summary Of Conversation</b>			
<p><b>1. What is your overall impression of the project? (general sentiment)</b>            Ms. Webster receives calls related to the Thermo-Chem Superfund site. Callers sometimes mention the SCA Independent Landfill because of the site's proximity to the Thermo-Chem Superfund site rather than the callers having any substantive concerns with the landfill. She is unaware of any significant public interest or concern relative to the landfill.</p> <p><b>2. What effects have site operations had on the surrounding community?</b>            Ms. Webster finds site operations to be working well as it relates to public satisfaction with the site.</p> <p><b>3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.</b>            Ms. Webster said that WMI got together with Thermo-Chem lawyers and approached Muskegon County regarding a municipal ordinance to limit consumptive groundwater use, but the county told them it would not be approvable.</p> <p><b>4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.</b>            Ms. Webster is unaware of any such activities at the site.</p> <p><b>5. Do you feel well informed about the site's activities and progress?</b>            Ms. Webster feels well enough informed about the site.</p> <p><b>6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?</b>            Ms. Webster had no further comments.</p>			

## Attachment 2 – Copy of Public Notice

### MDEQ and U.S. EPA Review SCA Independent Landfill Superfund Site

Muskegon County, Michigan  
Over the next three months, the Michigan Department of Environmental Quality (MDEQ) and the U.S. Environmental Protection Agency (EPA) will review site progress at the SCA Independent Landfill in Sullivan Township, Muskegon County, Michigan. The Superfund law\* recommends regular reviews of sites (at least every 5 years) when a long-term cleanup remedy is in place. These reviews are done to ensure the cleanup continues to protect human health and the environment.

This review will include an evaluation of background information, cleanup requirements, extent of sampling, effectiveness of the cleanup, and any anticipated future actions. Once the review is complete, a five-year review report will be available for public review and comment at the Egelston Township Library (231-788-6477).

Cleanup actions to date at this Superfund site, have included: extraction and treatment of leachate from within the landfill, enhancement of the clay cap and vegetation cover, and augmentation of the rainwater runoff handling systems, with a minimum of a 30-year groundwater monitoring program.

For more information about the review and report, or to submit comments about this site please contact:

Bruce VanOtteren  
Project Manager  
Michigan Department of  
Environmental Quality  
P.O. Box 30426  
Lansing, MI 48909  
(517) 373-8427

or

Ron Murawski  
U.S. Environmental Protection  
Agency, Region 5  
77 West Jackson Blvd.  
Chicago, IL 60604  
(312) 353-2886

#### \*CERCLA/SARA:

*Comprehensive Environmental  
Response, Compensation, and  
Liability Act of 1980 PL 96-510  
(CERCLA)*

PUBLISH: February 20, 2005

Attachment 2 – Copy of Public Notice (cont.)

STATE OF MICHIGAN  
County of Muskegon

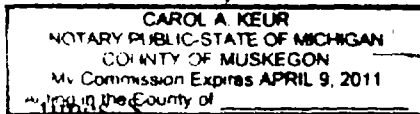
ss.

**Gary Ostrom**

being duly sworn deposes  
and says that he is the Publisher of the MUSKEGON CHRONICLE, a  
newspaper printed in Muskegon County and circulated within the Counties of  
Muskegon, Ottawa, Nawaygo, Mason, and Oceana; that the annexed notice was  
duly printed and published in said MUSKEGON CHRONICLE  
for one (1) day(s); that is to say, on  
the 20<sup>th</sup> day(s) of February 2005, and  
the \_\_\_\_\_ day(s) of \_\_\_\_\_ 200\_\_\_\_, and  
that said publication was continued during said time without any intermission  
or omission, and that he has a personal knowledge of the facts above set forth.



Subscribed and sworn to before me this 21<sup>st</sup> day  
of February A.D. 2005.



  
Notary Public, Muskegon County, Mich.